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Epidemiologic Notes and Reports

Selenium Intoxication — New York

On December 27, 1983, a 57-year-old female in New York began taking a daily selenium supplement distributed by Brite Years, Inc., of Tempe, Arizona. The label on the 90-tablet bottle recommended taking one of the 150-mcg tablets daily. She took the prescribed number in addition to her usual daily vitamins, which included: vitamin C (1,000 mg, plus bioflavinoids, thrice daily); vitamin A (10,000 units once daily); vitamin D (400 units once daily); vitamin E (400 units once daily); B complex (once daily); and a high-potency mineral supplement labeled as containing all 72 trace elements in undefined quantities, as well as calcium, magnesium, phosphate, potasium, zinc, iron, manganese, and iodine. She consumed at least one vitamin C tablet (1,000 mg) simultaneously with the selenium supplement.

Approximately 11 days after starting the selenium supplement, the patient noted marked hair loss limited to her scalp, which progressed over a 2-month period to almost total alopecia. Two weeks later, she noted white horizontal streaking on the fingernail of her left fifth digit, tenderness and swelling on the fingertip, and purulent discharge from the fingernail bed. This progressed over a 3-week period to involve all fingernails. The patient subsequently lost the entire fingernail of her left fifth digit. In addition, she experienced periodic episodes of nausea and vomiting, a sour-milk breath odor, and increasing fatigue. In January, she consulted a dermatologist for her hair loss and nail changes and was treated with oral erythromycin for paronychia. Her alopecia was attributed to emotional stress following the death of her husband a year earlier.

On March 11, 1984, she heard on the radio that the selenium tablets distributed by Brite Years, Inc., were being recalled because of superpotency. She stopped taking the tablets and consulted her internist. She had consumed 77 of the 90 tablets. A serum selenium level from March 15 was reported as 528 ng/ml, approximately four times the normal levels for the U.S. population (*1*).

The distributor voluntarily recalled the product when analysis of the selenium tablets from one lot revealed a selenium level of 27.3 mg per tablet (182 times higher than labeled). The implicated tablets were reportedly manufactured by Superior Health Vitamin and Health Foods in Deer Park, New York, for the distributor. These tablets were part of approximately 250 bottles distributed to 39 accounts in 15 states (Alaska, Alabama, Arizona, Arkansas, California, Iowa, Missouri, Montana, New York, Ohio, Oregon, Pennsylvania, Texas, Utah, and Virginia) from four distribution lots (codes 012163, 016213, 301216, and 012161). Subsequent analyses of tablets from all four implicated distribution lots have contained 25 mg of

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sodium selenite and 4 mg-5 mg total of elemental and/or organic selenium. Analysis of tablets taken from the symptomatic woman in New York found 31 mg of total selenium per tablet.

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Editorial Note: Selenium is widely, though irregularly, distributed in soil, forages, and grains and has many commercial uses. Human intake of selenium comes mainly from cereal, fish, and meat in the diet, and, in residents of one city studied, averaged 81 mcg per day (*2*). While there is no established recommended daily allowance, the proposed adequate and safe intake of selenium in adults is 50 mcg-200 mcg daily (*3*). Until lately, there were no well-documented cases of human selenium toxicity. A recent study reported a number of villages in the People's Republic of China, where high percentages of individuals had nail and hair loss, dermatitis, nausea, garlic odor on their breath, fatigue, irritability, and hyperreflexia (*4*). Individual daily dietary selenium intake in this area ranged from 3.20 mg to 6.69 mg (average 4.99 mg), and whole blood levels of selenium ranged from 1,300 ng/ml to 7,500 ng/ml (average 3,200 ng/ml).*

The signs and symptoms exhibited by the New York woman were almost certainly due to selenium intoxication. The estimated cumulative dose of selenium she ingested over the 77 days was 2,387 mg. Her toxicity was probably minimized by the simultaneous ingestion of large doses of vitamin C. Vitamin C reduces selenite to elemental selenium that is poorly absorbed.

This incident demonstrates that excessive doses of trace elements can have toxic effects. Implementation of improved quality-control measures in the manufacture of these food supplements could help alleviate problems of this nature in the future. With the general increase in use of vitamin and mineral supplements in this country, the public and the medical community should be aware of the potential for toxicity.

References

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*Whole blood selenium measurements are approximately 30% higher than serum selenium.

Disseminated Gonococcal Infections and Meningitis — Pennsylvania

Between January 9, and January 31, 1984, two cases of disseminated gonococcal infection (DGI) associated with meningitis occurred in the Philadelphia, Pennsylvania, area. The patients did not have a common sexual contact. One patient died.

Case 1: A 15-year-old female, previously well, was admitted to a Philadelphia-area hospital on January 9, with less than 1 day of malaise, sore throat, and progressive mental confusion. Her previous medical history was unremarkable for repeated or unusual infections. During July 1983, she had been treated for a culture-proven *Neisseria gonorrhoeae* cervical

Disseminated Gonococcal Infections – Continued

infection with oral ampicillin 3.5 g/probenicid 1 g; her test-of-cure was negative. The patient was seen again at an area clinic during November 1983 as a suspected contact of gonorrhea and was treated with oral ampicillin 3.5 g/probenicid 1 g; the cervical culture submitted was negative for *N. gonorrhoeae*. No sexual partners were identified at these visits or at the current admission.

Clinical and laboratory findings on admission supported a diagnosis of hypovolemic shock and sepsis, with acute renal failure, disseminated intravascular coagulation, and meningitis. Intravenous ampicillin and chloramphenicol were administered, along with other supportive measures. Two blood cultures and a cervical culture obtained on admission were positive for *N. gonorrhoeae*. Although cerebrospinal fluid (CSF) cultures were negative for bacterial pathogens, large numbers of polymorphonuclear leukocytes were present. Despite intense supportive measures, including intubation with ventilator support, the patient succumbed to overwhelming sepsis, shock, and noncardiogenic pulmonary edema on January 13.

Case 2: A 19-year-old female, previously well, was admitted to a second area hospital on January 24, with a 2-day history of nausea, vomiting, headache, and neck stiffness. Following admission, she was treated with intravenous penicillin, to which she gradually responded. Specimens obtained from the cervix and CSF were culture-positive for *N. gonorrhoeae*. She was discharged following an uneventful recovery. Two male sexual contacts were identified, with symptoms localized to the genitourinary tract.

Laboratory investigation: Isolates were submitted to CDC for further confirmation and evaluation. The identities of the isolates were confirmed by carbohydrate utilization and commercial coagglutination; each isolate was tested for production of β-lactamase (penicillinase). Serogrouping based on major outer membrane proteins was determined using experimental monoclonal antibodies (*1*). Nutritional requirements were identified by auxotyping (*2*). Antibiotic susceptibilities were determined by agar dilution, and plasmid content was identified for each gonococcal isolate. Gonococci were incubated with normal human sera and the patients' sera to determine serum bactericidal activity. Major complement component levels were determined for each patient.

Isolates from the blood and cervix of the first patient were *N. gonorrhoeae*, nonpenicillinase-producing, serogroup IA, proline auxotype, plasmid content of 2.6 megadaltons, with susceptibility to penicillin, tetracycline, chloramphenicol, erythromycin, trimethoprim/sulfamethoxazole, spectinomycin, and cefoxitin. Incubation of gonococci with normal human serum (NHS) showed resistance to killing, but there was bactericidal activity with the patient's serum (PS). Quantitation of complement components for the first patient revealed a moderate depression of C-3 and C-4 components.

Isolates from the CSF and cervix of the second patient were confirmed as *N. gonorrhoeae*, nonpenicillinase-producing, serogroup IA, proline auxotype, plasmid content of 2.6 megadaltons, with a similar antibiotic susceptibility pattern to the isolates from the first patient. Incubation of gonococci with NHS and PS demonstrated resistance to NHS and bactericidal activity with PS. No serum complement deficiencies were demonstrated.

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Editorial Note: The occurrence of two cases of DGI associated with meningitis within a 1-month period in the same area is extremely unusual. Both patients were similar by age

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group (15-19 years), sex, race, and geographic area. The isolates from the patients were identical with regard to serogrouping, auxotyping, and plasmid content. There were no complement deficiencies, except a moderate depression of C-3 and C-4 components in the first patient, which may have been attributable to overwhelming sepsis. However, C-3 deficiency has been associated with recurrent infections caused by other pyogenic organisms (*3,4*).

DGI is most commonly associated with clinically diagnosed arthritis or tenosynovitis and typical skin lesions. However, a microbiologic diagnosis based on positive blood, synovial fluid, or skin-lesion cultures may be difficult to confirm.

DGI causing meningitis, septic shock, and death is very rare to virtually unknown. Only 20 gonococcal meningitis cases were reported between 1922 and 1972 (*5,6*). Among 49 DGI patients from a recent report, none had meningitis; most of these organisms were serogroup IA (*7*).

The unusual clinical presentation of DGI with meningitis supports the necessity for the differentiation of *N. gonorrhoeae* from *N. meningitidis* among patients with Gram-negative diplococcal bacteremia and meningitis.

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TABLE I. Summary—cases specified notifiable diseases, United States

Disease	12th Week Ending			Cumulative, 12th Week Ending		
	March 24, 1984	March 26, 1983	Median 1979-1983	March 24, 1984	March 26, 1983	Median 1979-1983
Acquired Immunodeficiency Syndrome (AIDS)	115	N	N	827	N	N
Aseptic meningitis	68	52	58	906	963	799
Encephalitis: Primary (arthropod-borne & unspec.)	26	18	18	159	215	194
Post-infectious	2	5	4	8	18	20
Gonorrhea: Civilian	14,319	17,353	17,103	185,375	209,751	218,491
Military	383	299	483	4,503	5,549	6,428
Hepatitis: Type A	455	504	504	5,202	5,648	5,787
Type B	473	460	410	5,197	4,962	4,308
Non A, Non B	68	90	N	747	734	N
Unspecified	132	178	238	1,437	1,717	2,372
Legionellosis	16	12	N	112	136	N
Leprosy	3	4	2	47	56	40
Malaria	13	17	17	119	147	173
Measles: Total*	21	144	144	380	422	597
Indigenous	20	138	N	353	384	N
Imported	1	6	N	27	38	N
Meningococcal infections: Total	91	97	90	776	773	827
Civilian	91	97	88	776	762	822
Military	-	-	1	-	11	9
Mumps	56	81	227	822	994	1,532
Pertussis	34	47	22	392	312	243
Rubella (German measles)	8	24	67	120	245	593
Syphilis (Primary & Secondary): Civilian	529	762	591	6,451	7,864	7,055
Military	17	4	5	78	106	89
Toxic Shock syndrome	1	22	N	71	111	N
Tuberculosis	376	489	492	4,428	4,815	5,500
Tularemia	-	4	3	16	36	22
Typhoid fever	11	2	9	65	71	91
Typhus fever, tick-borne (RMSF)	1	-	-	10	12	12
Rabies, animal	92	201	145	930	1,310	1,128

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1984		Cum. 1984
Anthrax	-	Plague	2
Botulism: Foodborne	4	Poliomyelitis: Total	-
Infant (Md. 1, Calif. 3, Hawaii 1)	19	Paralytic	-
Other	2	Psittacosis (Ga. 1, Wash. 2)	16
Brucellosis (Fla. 1, Miss. 1, Hawaii 1)	24	Rabies, human	-
Cholera	-	Tetanus	6
Congenital rubella syndrome	1	Trichinosis	8
Diphtheria	-	Typhus fever, flea-borne (endemic, murine) (Hawaii 1)	6
Leptospirosis	3		

*One of the 21 reported cases for this week was imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending March 24, 1984 and March 26, 1983 (12th Week)

Reporting Area	AIDS	Aseptic Menin-gitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionel-losis	Leprosy
			Primary	Post-in-fectious			A	B	NA,NB	Unspeci-fied		
	Cum. 1984	1984	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1983	1984	1984	1984	1984	1984	Cum. 1984
UNITED STATES	827	68	159	8	185,375	209,751	455	473	68	132	16	47
NEW ENGLAND	31	2	7	-	5,864	5,313	6	21	1	16	-	2
Maine	-	-	-	-	230	299	1	-	-	-	-	-
N.H.	1	-	3	-	128	154	1	1	-	-	-	-
Vt.	-	-	-	-	91	85	-	-	-	1	-	-
Mass.	18	1	4	-	2,179	2,406	3	9	-	12	-	2
R.I.	-	-	-	-	381	284	-	-	-	-	-	-
Conn.	12	1	-	-	2,855	2,085	1	11	1	3	-	-
MID ATLANTIC	377	4	20	-	25,375	28,660	76	79	6	13	1	2
Upstate N.Y.	24	1	4	-	3,904	3,712	7	15	-	2	-	2
N.Y. City	280	-	-	-	10,896	11,413	36	25	-	3	-	-
N.J.	62	-	11	-	3,970	4,905	21	22	3	5	1	-
Pa.	11	3	5	-	6,605	6,630	12	17	3	3	-	-
E.N. CENTRAL	41	11	31	1	23,480	30,200	36	48	9	9	9	3
Ohio	9	4	12	1	6,773	7,713	12	17	3	2	7	1
Ind.	7	2	7	-	2,590	3,618	2	6	1	4	-	-
Ill.	20	3	3	-	3,928	8,389	18	10	-	2	1	-
Mich.	3	2	7	-	7,323	7,903	4	15	5	1	1	2
Wis.	2	-	2	-	2,866	2,577	-	-	-	-	-	-
W.N. CENTRAL	3	1	3	-	8,856	9,862	13	12	2	3	-	-
Minn.	1	1	-	-	1,220	1,422	1	1	2	-	-	-
Iowa	-	-	2	-	1,034	1,026	-	3	-	2	-	-
Mo.	2	-	-	-	4,084	4,713	6	7	-	1	-	-
N. Dak.	-	-	-	-	104	102	-	-	-	-	-	-
S. Dak.	-	-	-	-	275	281	6	-	-	-	-	-
Nebr.	-	-	-	-	613	551	-	-	-	-	-	-
Kans.	-	-	1	-	1,526	1,767	-	1	-	-	-	-
S. ATLANTIC	108	18	33	6	47,525	54,185	52	87	16	8	4	2
Del.	3	-	1	-	750	1,008	-	1	1	-	-	-
Md.	11	-	6	-	5,995	6,861	2	14	4	1	-	-
D.C.	14	-	-	-	3,481	3,609	-	2	-	-	-	-
Va.	6	2	11	3	4,503	4,628	8	12	2	1	1	1
W. Va.	1	-	3	-	579	540	2	-	-	-	1	-
N.C.	1	-	6	2	7,811	7,411	3	7	1	2	2	-
S.C.	3	-	1	-	4,480	5,278	-	5	-	-	-	-
Ga.	11	4	3	-	9,166	12,398	8	14	1	-	-	-
Fla.	58	12	2	1	10,760	12,452	29	32	7	4	-	1
E.S. CENTRAL	6	6	7	-	15,672	18,049	14	48	3	-	-	-
Ky.	4	-	-	-	1,976	2,239	10	9	-	-	-	-
Tenn.	-	4	2	-	6,331	7,133	2	18	1	-	-	-
Ala.	1	-	5	-	4,992	5,500	-	19	2	-	-	-
Miss.	1	2	-	-	2,373	3,177	2	2	-	-	-	-
W.S. CENTRAL	35	6	12	1	26,085	29,330	61	53	2	46	1	3
Ark.	-	1	-	1	2,210	2,415	3	4	-	8	-	-
La.	7	-	2	-	5,966	4,614	12	12	-	-	-	-
Okla.	2	1	1	-	2,868	3,497	7	10	1	1	1	-
Tex.	26	4	9	-	15,041	18,804	39	27	1	37	-	3
MOUNTAIN	8	4	5	-	5,778	6,278	40	29	2	13	1	6
Mont.	-	-	-	-	267	316	-	-	-	-	-	-
Idaho	-	-	-	-	276	323	-	3	1	-	-	-
Wyo.	-	-	-	-	164	183	-	-	-	-	-	-
Colo.	3	3	3	-	1,611	1,803	15	8	-	2	-	-
N. Mex.	-	-	-	-	728	859	1	4	-	2	-	-
Ariz.	5	1	-	-	1,497	1,501	16	8	-	5	-	4
Utah	-	-	2	-	323	303	5	1	-	3	1	1
Nev.	-	-	-	-	912	990	3	5	1	1	-	1
PACIFIC	218	16	41	-	26,740	29,874	157	96	27	24	-	29
Wash.	5	1	-	-	1,814	2,275	6	8	4	1	-	1
Oreg.	1	-	-	-	1,584	1,514	20	5	5	-	-	1
Calif.	210	14	40	-	22,197	24,794	127	79	18	23	-	19
Alaska	-	-	-	-	662	694	-	-	-	-	-	-
Hawaii	2	1	1	-	483	597	4	4	-	-	-	8
Guam	-	U	-	-	22	52	U	U	U	U	U	-
P.R.	10	1	-	-	826	630	4	20	-	7	-	-
V.I.	-	U	-	-	93	69	U	U	U	U	U	-
Pac. Trust Terr.	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable U: Unavailable

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending March 24, 1984 and March 26, 1983 (12th Week)

Reporting Area	Malaria	Measles (Rubeola)					Menin-gococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	1984	Cum. 1984	Cum. 1983
UNITED STATES	119	20	353	1	27	422	776	56	822	34	392	312	8	120	245
NEW ENGLAND	13	-	-	-	-	2	62	3	38	2	10	15	-	15	2
Maine	-	-	-	-	-	-	1	-	12	-	-	-	-	1	-
N.H.	-	-	-	-	-	-	4	-	4	-	2	3	-	-	-
Vt.	1	-	-	-	-	-	18	1	2	1	5	3	-	-	1
Mass.	7	-	-	-	-	1	21	2	16	1	2	8	-	14	1
R.I.	1	-	-	-	-	-	4	-	1	-	1	1	-	-	-
Conn.	4	-	-	-	-	1	14	-	3	-	-	-	-	-	-
MID ATLANTIC	12	-	9	-	3	11	97	13	116	1	23	54	1	3	15
Upstate N.Y.	4	-	-	-	-	2	36	1	26	1	13	26	1	2	9
N.Y. City	-	-	9	-	-	8	11	-	3	-	1	7	-	-	2
N.J.	5	-	-	-	3	1	25	12	78	-	1	8	-	1	1
Pa.	3	-	-	-	-	-	25	-	9	-	8	13	-	-	3
E.N. CENTRAL	12	5	113	-	2	241	117	15	273	17	131	89	-	16	40
Ohio	4	-	1	-	2	1	47	2	79	-	26	30	-	1	1
Ind.	-	-	3	-	-	191	15	1	17	13	79	3	-	1	-
Ill.	2	5	20	-	-	44	17	10	64	1	8	44	-	9	17
Mich.	4	-	89	-	-	5	26	2	90	3	10	5	-	3	9
Wis.	2	-	-	-	-	-	12	-	23	-	8	7	-	2	13
W.N. CENTRAL	5	-	-	-	-	-	47	-	55	1	58	15	1	11	16
Minn.	-	-	-	-	-	-	6	-	1	-	2	4	1	1	3
Iowa	1	-	-	-	-	-	13	-	11	-	3	2	-	-	-
Mo.	3	-	-	-	-	-	15	-	5	-	9	2	-	-	-
N. Dak.	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-
S. Dak.	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-
Nebr.	-	-	-	-	-	-	3	-	1	-	2	-	-	-	-
Kans.	1	-	-	-	-	-	9	-	36	1	41	7	-	9	13
S. ATLANTIC	20	1	1	1	5	75	186	3	68	1	43	48	1	11	19
Del.	2	-	-	-	-	-	1	-	2	-	-	-	-	-	-
Md.	5	-	-	-	-	1	13	-	16	-	3	4	-	-	-
D.C.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Va.	4	1	1	-	1	2	19	1	4	-	7	18	-	-	1
W. Va.	-	-	-	-	-	-	3	1	14	-	5	2	-	-	-
N.C.	2	-	-	-	-	-	24	1	10	-	15	1	-	-	1
S.C.	1	-	-	-	-	3	16	-	1	-	1	2	-	-	-
Ga.	1	-	-	-	-	6	42	-	3	-	2	16	-	1	5
Fla.	5	-	-	1†	4	63	66	-	18	1	10	5	1	10	12
E.S. CENTRAL	-	-	1	-	2	-	34	2	13	-	2	4	1	1	5
Ky.	-	-	1	-	-	-	4	-	3	-	1	2	-	-	5
Tenn.	-	-	-	-	2	-	15	1	4	-	1	2	-	-	-
Ala.	-	-	-	-	-	-	10	-	3	-	-	-	1	1	-
Miss.	-	-	-	-	-	-	5	1	3	-	-	-	-	-	-
W.S. CENTRAL	4	-	70	-	-	40	99	5	50	3	40	28	-	11	39
Ark.	-	-	-	-	-	10	11	-	3	1	10	1	-	1	-
La.	-	-	-	-	-	-	15	-	-	-	1	2	-	-	-
Okla.	2	-	-	-	-	-	14	N	N	2	28	8	-	-	-
Tex.	2	-	70	-	-	30	59	5	47	-	1	15	-	10	39
MOUNTAIN	4	-	45	-	8	1	28	3	73	6	41	48	-	3	11
Mont.	-	-	-	-	-	-	1	-	3	-	19	1	-	-	2
Idaho	-	-	-	-	-	-	3	-	5	-	1	2	-	1	2
Wyo.	-	-	-	-	-	-	-	-	1	-	1	4	-	-	1
Colo.	1	-	-	-	-	1	11	-	6	1	12	29	-	-	-
N. Mex.	-	-	22	-	8	-	4	N	N	-	2	4	-	-	-
Ariz.	1	-	-	-	-	-	4	2	54	3	3	6	-	-	4
Utah	2	-	23	-	-	-	3	-	3	-	1	2	-	2	1
Nev.	-	-	-	-	-	-	-	1	1	2	2	-	-	-	1
PACIFIC	49	14	114	-	7	52	108	12	136	3	44	13	4	49	98
Wash.	2	-	13	-	-	1	15	3	20	-	8	1	-	-	1
Oreg.	1	-	-	-	-	4	18	N	N	1	5	1	-	-	5
Calif.	43	14	101	-	5	46	72	9	108	2	18	11	4	48	92
Alaska	-	-	-	-	-	-	2	-	3	-	-	-	-	-	-
Hawaii	3	-	-	-	2	1	1	-	5	-	13	-	-	1	-
Guam	-	U	4	U	1	-	-	U	1	U	-	-	U	1	-
P.R.	2	-	-	-	-	43	2	4	38	-	-	3	-	1	1
V.I.	-	U	-	U	-	5	-	U	3	U	-	-	U	-	1
Pac. Trust Terr.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont.'d). Cases of specified notifiable diseases, United States, weeks ending March 24, 1984 and March 26, 1983 (12th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1984	Cum. 1983	1984	Cum. 1984	Cum. 1983	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1984
UNITED STATES	6,451	7,864	1	4,428	4,815	16	65	10	930
NEW ENGLAND	140	195	-	116	124	1	1	-	6
Maine	1	1	-	6	9	-	-	-	6
N.H.	1	5	-	8	13	-	-	-	-
Vt.	-	1	-	3	1	-	-	-	-
Mass.	86	124	-	58	55	1	-	-	-
R.I.	7	3	-	14	13	-	-	-	-
Conn.	45	51	-	27	33	-	1	-	-
MID ATLANTIC	865	932	1	825	933	-	10	-	64
Upstate N.Y.	56	77	-	134	185	-	5	-	3
N.Y. City	508	554	-	337	367	-	2	-	-
N.J.	180	172	-	166	206	-	3	-	-
Pa.	123	129	1	188	195	-	-	-	61
E.N. CENTRAL	238	481	-	585	890	-	7	1	34
Ohio	53	121	-	117	116	-	2	1	2
Ind.	35	45	-	61	89	-	1	-	4
Ill.	60	232	-	240	298	-	2	-	22
Mich.	68	60	-	134	152	-	-	-	1
Wis.	22	23	-	33	35	-	2	-	5
W.N. CENTRAL	108	94	-	112	177	5	2	2	114
Minn.	22	41	-	19	27	-	2	-	13
Iowa	10	4	-	20	23	-	-	-	29
Mo.	59	33	-	48	92	5	-	2	7
N. Dak.	-	-	-	4	-	-	-	-	22
S. Dak.	-	-	-	3	16	-	-	-	24
Nebr.	5	5	-	7	4	-	-	-	6
Kans.	10	11	-	13	15	-	-	-	13
S. ATLANTIC	2,008	2,007	-	1,021	894	1	9	1	329
Del.	7	10	-	14	6	-	-	-	-
Md.	123	108	-	115	75	-	-	-	217
D.C.	69	78	-	32	31	-	3	-	-
Va.	107	153	-	84	77	-	3	-	68
W. Va.	8	5	-	38	46	-	-	-	8
N.C.	228	194	-	170	90	-	1	-	1
S.C.	185	148	-	113	80	-	1	-	-
Ga.	335	369	-	134	173	1	-	-	34
Fla.	946	942	-	321	316	-	1	1	1
E.S. CENTRAL	409	543	-	404	464	-	2	3	55
Ky.	23	34	-	100	125	-	-	-	13
Tenn.	97	151	-	125	128	-	2	1	27
Ala.	149	215	-	148	138	-	-	2	15
Miss.	140	143	-	31	73	-	-	-	-
W.S. CENTRAL	1,604	2,011	-	429	513	4	5	2	185
Ark.	63	48	-	37	37	3	-	1	20
La.	297	407	-	56	94	-	1	-	7
Okla.	48	51	-	50	59	1	1	-	20
Tex.	1,196	1,505	-	286	323	-	3	1	138
MOUNTAIN	137	183	-	89	137	3	2	-	23
Mont.	-	4	-	7	12	-	1	-	13
Idaho	8	1	-	4	10	-	-	-	-
Wyo.	1	3	-	-	2	-	-	-	-
Colo.	31	43	-	7	9	-	-	-	-
N. Mex.	16	66	-	24	24	-	1	-	4
Ariz.	49	36	-	36	58	1	-	-	6
Utah	6	8	-	7	11	2	-	-	-
Nev.	26	22	-	4	11	-	-	-	-
PACIFIC	944	1,428	-	847	883	2	27	1	120
Wash.	29	52	-	31	51	-	1	-	1
Oreg.	29	23	-	37	42	1	-	1	-
Calif.	864	1,323	-	710	717	1	23	-	115
Alaska	1	7	-	17	13	-	1	-	4
Hawaii	21	23	-	52	60	-	2	-	-
Guam	-	-	U	-	1	-	-	-	-
P.R.	202	171	-	75	119	-	2	-	10
V.I.	6	7	U	-	-	-	-	-	-
Pac. Trust Terr.	-	-	U	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending March 24, 1984 (12th Week Ending)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	711	481	149	45	16	20	67
Boston, Mass.	221	127	60	14	8	12	37
Bridgeport, Conn.	35	21	8	4	1	1	3
Cambridge, Mass.	25	23	2	-	-	-	2
Fall River, Mass.	41	32	8	1	-	-	-
Hartford, Conn.	71	51	12	6	-	2	1
Lowell, Mass.	26	17	7	1	-	1	1
Lynn, Mass.	19	18	1	-	-	-	-
New Bedford, Mass.	26	18	4	2	2	-	2
New Haven, Conn.	44	27	12	5	-	-	1
Providence, R.I.	65	45	12	4	3	1	8
Somerville, Mass.	7	4	3	-	-	-	-
Springfield, Mass.	44	33	3	5	1	2	3
Waterbury, Conn.	39	31	5	2	-	1	4
Worcester, Mass.	48	34	12	1	1	-	5
MID. ATLANTIC	3,171	2,099	706	232	64	70	143
Albany, N.Y.	51	38	7	3	-	3	4
Allentown, Pa.	16	15	-	1	-	-	1
Buffalo, N.Y.	120	80	22	12	5	1	6
Camden, N.J.	41	19	14	3	4	1	2
Elizabeth, N.J.	30	19	5	4	2	-	2
Erie, Pa.†	51	44	7	-	-	-	3
Jersey City, N.J.	58	41	10	5	1	1	1
N.Y. City, N.Y.	1,548	1,024	344	126	28	26	58
Newark, N.J.	83	43	18	12	5	5	9
Paterson, N.J.	26	16	6	2	-	2	4
Philadelphia, Pa.†	652	403	167	43	16	23	26
Pittsburgh, Pa.†	78	50	21	6	-	1	2
Reading, Pa.	40	39	-	1	-	-	4
Rochester, N.Y.	135	94	28	5	3	5	8
Schenectady, N.Y.	29	23	4	1	-	1	2
Scranton, Pa.†	31	24	6	1	-	-	4
Syracuse, N.Y.	87	59	24	3	-	1	2
Trenton, N.J.	35	28	6	1	-	-	-
Utica, N.Y.	27	18	7	2	-	-	1
Yonkers, N.Y.	33	22	10	1	-	-	4
E.N. CENTRAL	2,292	1,484	504	140	75	88	90
Akron, Ohio	69	56	6	3	1	3	-
Canton, Ohio	39	27	7	3	1	1	2
Chicago, Ill	492	293	107	36	29	27	12
Cincinnati, Ohio	166	112	39	6	4	5	18
Cleveland, Ohio	187	106	43	17	6	15	4
Columbus, Ohio	131	77	38	12	3	1	2
Dayton, Ohio	125	93	23	4	2	3	5
Detroit, Mich.	258	165	52	20	13	7	6
Evansville, Ind.	47	36	11	-	-	-	3
Fort Wayne, Ind.	42	29	10	-	1	2	5
Gary, Ind.	13	4	3	6	-	-	-
Grand Rapids, Mich.	58	43	10	3	1	1	2
Indianapolis, Ind.	171	108	45	9	5	4	4
Madison, Wis.	31	21	4	-	3	3	3
Milwaukee, Wis.	140	97	28	7	-	8	6
Peoria, Ill.	41	30	9	-	-	2	3
Rockford, Ill.	42	29	8	3	1	1	6
South Bend, Ind.	59	43	12	2	2	-	5
Toledo, Ohio	111	64	37	3	3	4	3
Youngstown, Ohio	70	51	12	6	-	1	1
W.N. CENTRAL	795	542	165	42	17	29	72
Des Moines, Iowa	54	31	19	3	-	1	4
Duluth, Minn.	27	19	6	1	1	-	3
Kansas City, Kans.	32	17	9	2	3	1	1
Kansas City, Mo.	119	84	24	6	3	2	18
Lincoln, Nebr.	45	34	8	2	-	1	4
Minneapolis, Minn.	80	55	13	7	2	3	4
Omaha, Nebr.	81	57	13	4	-	7	9
St. Louis, Mo.	193	136	38	8	4	7	15
St. Paul, Minn.	79	56	17	2	2	2	3
Wichita, Kans.	85	53	18	7	2	5	12
S. ATLANTIC	1,307	831	309	96	34	36	57
Atlanta, Ga.	138	82	33	14	3	6	4
Baltimore, Md.	145	83	47	12	2	1	5
Charlotte, N.C.	79	56	11	5	4	2	3
Jacksonville, Fla.	120	79	28	8	3	2	9
Miami, Fla.	85	57	21	4	2	1	-
Norfolk, Va.	62	42	15	3	1	1	5
Richmond, Va.	82	47	23	4	-	8	7
Savannah, Ga.	36	23	8	3	2	-	3
St. Petersburg, Fla.	120	99	19	2	-	-	6
Tampa, Fla.	82	53	14	8	4	3	3
Washington, D.C.	310	182	81	28	8	11	8
Wilmington, Del.	48	28	9	5	5	1	4
E.S. CENTRAL	759	504	168	44	16	27	52
Birmingham, Ala.	104	64	29	8	-	3	2
Chattanooga, Tenn.	56	37	13	3	2	1	2
Knoxville, Tenn.	67	44	12	3	2	6	2
Louisville, Ky.	119	84	27	5	2	1	4
Memphis, Tenn.	187	128	41	12	2	4	29
Mobile, Ala.	51	32	11	2	3	3	6
Montgomery, Ala.	57	42	5	5	1	4	3
Nashville, Tenn.	118	73	30	6	4	5	4
W.S. CENTRAL	1,280	789	298	103	43	46	75
Austin, Tex.	62	45	8	4	2	2	-
Baton Rouge, La.	47	28	11	5	1	2	4
Corpus Christi, Tex.	46	28	8	8	2	-	-
Dallas, Tex.	212	108	68	23	5	8	15
El Paso, Tex.	76	48	16	6	3	3	4
Fort Worth, Tex.	102	61	23	8	4	6	10
Houston, Tex.	119	66	27	14	5	7	6
Little Rock, Ark.	86	56	22	3	1	4	10
New Orleans, La.	203	133	46	10	7	7	5
San Antonio, Tex.	170	114	34	13	3	6	13
Shreveport, La.	60	40	16	3	1	-	3
Tulsa, Okla.	97	62	19	6	9	1	5
MOUNTAIN	757	488	162	57	22	28	39
Albuquerque, N.Mex.	80	48	15	12	2	3	3
Colo. Springs, Colo.	39	24	7	3	4	1	6
Denver, Colo.	143	87	38	10	4	4	6
Las Vegas, Nev.	103	70	27	5	-	1	1
Ogden, Utah	23	19	1	1	1	1	3
Phoenix, Ariz.	193	125	37	12	5	14	4
Pueblo, Colo.	23	17	5	1	-	-	-
Salt Lake City, Utah	52	32	11	4	2	3	5
Tucson, Ariz.	101	66	21	9	4	1	11
PACIFIC	1,996	1,344	396	133	66	57	103
Berkeley, Calif.	16	12	2	1	-	-	-
Fresno, Calif.	82	54	12	7	4	5	6
Glendale, Calif.	33	24	7	2	-	-	-
Honolulu, Hawaii	84	50	18	4	8	4	8
Long Beach, Calif.	85	47	27	6	2	3	3
Los Angeles, Calif.	629	431	126	43	20	9	1
Oakland, Calif.	75	50	16	3	4	2	5
Pasadena, Calif.	44	34	5	3	1	1	3
Portland, Oreg.	133	99	22	5	3	4	8
Sacramento, Calif.	92	58	15	5	3	11	7
San Diego, Calif.	156	106	36	8	4	2	25
San Francisco, Calif.	125	79	24	16	3	3	5
San Jose, Calif.	153	99	28	15	6	5	9
Seattle, Wash.	153	102	37	6	4	4	9
Spokane, Wash.	57	39	8	4	3	3	4
Tacoma, Wash.	80	60	13	5	1	1	10
TOTAL	13,068††	8,562	2,857	892	353	401	698

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

Disseminated Gonococcal Infections – Continued

There have been no additional cases of DGI with meningitis reported from the Philadelphia area. Recommendations have been made to increase surveillance for DGI and complications of gonococcal infection, particularly among hospitalized patients. A survey is being conducted to sample representative *N. gonorrhoeae* among the Philadelphia population.

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Infant Botulism — Massachusetts

A previously healthy 5-month-old male infant was admitted to a Massachusetts hospital in November 1983 with progressive lethargy and loss of developmental milestones over 3 weeks, constipation for 12 days, and poor suck and feeding. He had been breast-fed, and bottled foods were added at the age of 3 months. On examination, the child was generally hypotonic with flaccid extremities, no head control, and no suck or Moro reflexes. He was alert, able to smile, and had no oculomotor weakness. An electromyogram revealed a post-tetanic facilitation pattern after stimulation at 50 Hz, compatible with infant botulism. He was initially treated with intravenous hydration and saline enemas. Naso-gastric feedings were begun on the fourth hospital day, and he improved gradually thereafter. Type B botulinal toxin and *Clostridium botulinum* were identified in a stool specimen by the Massachusetts State Laboratory.

Reported by DG Sidebottom, MD, Children's Hospital, Boston, JP Reardon, MD, MB Holmes, NJ Fiumara, MD, State Epidemiologist, Massachusetts Dept of Public Health; Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Infant botulism, in contrast to foodborne botulism resulting from ingestion of preformed toxin, is caused by *C. botulinum* toxin produced in and absorbed from the gastrointestinal tract, leading to neurologic manifestations. This report represents the first case of infant botulism identified in Massachusetts and the second from the New England states; the first reported case occurred in 1983 in Connecticut. Infant botulism was first identified in 1976; four states—California, Texas, Pennsylvania, and Tennessee—reported cases that year. To date, 36 states in all geographic regions, including Alaska and Hawaii, have identified cases. Between 1976 and 1983, 395 cases were reported to CDC. Patients' ages ranged from 2 to 38 weeks, and 204 (52%) were male; most were hospitalized, and 11 died. Type A botulinal toxin was identified in 50% of the cases; type B, in 49%; and types F and B/F, in one case each.

Infant Botulism — Continued

A case-control study performed by the California Department of Health Services in 1976-1978 showed that infants with type B botulism were more likely than controls to have been fed honey, and type B spores were identified in implicated honey samples (*1*). This is the only exposure that is a clearly defined risk factor for cases of infant botulism, and CDC has recommended that honey not be fed to infants under 1 year of age (*2*). In a 1976-1980 epidemiologic study of infant botulism cases reported through CDC's surveillance system from states other than California, 96 infant botulism patients were compared with infants in the general population; infant botulism patients tended to have higher birth weights, and their mothers tended to be older and better educated (*3*). Seventy percent of the botulism patients were predominantly breast-fed.

For patients in whom the diagnosis of infant botulism is considered, physicians should collect stool specimens for toxin testing and culture and should contact their state health departments for processing specimens. Treatment is mainly supportive, with gradual recovery in most cases. Enemas may be given to help eliminate toxin from the gastrointestinal tract. The roles of botulinal antitoxin and antimicrobials in treatment are unclear.

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Current Trends

Update: Influenza Activity — United States

Reports of influenza virus isolates received weekly at CDC from collaborating laboratories peaked in February and are now declining in parallel with morbidity indices of influenza (Figure 1) (*1*). A preliminary total of 1,317 influenza virus isolates has been reported this season through March 23, 1984; 807 (61%) were identified as type A(H1N1); 452 (34%) as type B; and 58 (4%) as type A(H3N2). One or more types of influenza virus have now been isolated in 49 states and the District of Columbia.

Although outbreaks in nursing homes have been uncommon this season, as most activity has been of type A(H1N1) virus among children or young adults, a few have been documented in association with types A(H3N2) or B infection. Five such outbreaks have been reported—three from California and one each from Massachusetts and Minnesota. The first began at a nursing home in San Bernadino at the end of December 1983, when 15 (31%) of 48 residents developed influenza-like illness. Serologic testing has shown diagnostic rises in titers to influenza type A(H3N2) in three of four patients. In late February, another influenza outbreak was noted in a Los Angeles hospital for elderly patients. Influenza-like illness affected 30 (38%) of the 80 patients, and one type B isolate was obtained. Further serologic studies also indicated type B infections. A small outbreak was reported early in March in San Francisco, where all 10 patients in one ward of a nursing hospital for the elderly developed influenza-like illnesses, and four type B isolates were identified. In Massachusetts, two type

Influenza – Continued

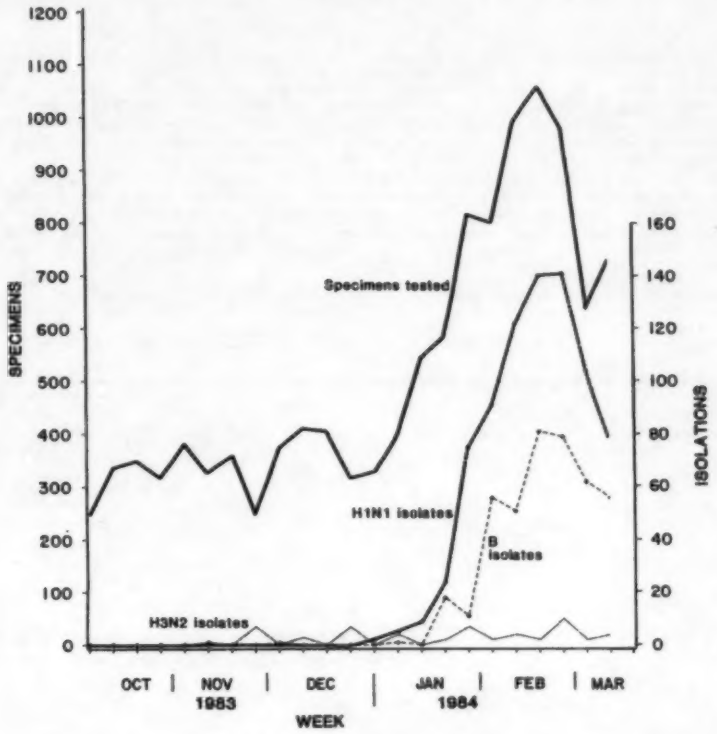
A(H3N2) virus isolates were obtained in March from an outbreak of influenza-like illness in a nursing home. In Minnesota, an outbreak of type B that began in mid-March was recently documented from a Hennepin County nursing home. Influenza-like illness affected 29 (23%) of the 200 residents, and type B was identified in four of six specimens collected.

Reported by A Taylor, MPH, T Stephenson, MPH, San Bernadino County Health Dept, F Sorvillo, MPH, Los Angeles County Health Dept, B Louie, S Dritz, MD, San Francisco County Health Dept, J Schieble, PhD, R Murray, DrPH, California Dept of Health Svcs; J McDonough, Hennepin County, D Peterson, MPH, Minnesota Dept of Health; J DeCinti, MEd, Massachusetts Dept of Public Health; State Epidemiologists and Laboratory Directors; Statistical Svcs Br, Div of Surveillance and Epidemiologic Studies, Epidemiology Program Office, Systems Development Br, Computer Systems Office, Statistical Svcs Activity, Influenza Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

Reference

1. CDC. Influenza Activity—Mississippi, United States, Worldwide. MMWR 1984:33;131-40.

FIGURE 1. Laboratory surveillance of influenza, by number of specimens submitted and virus isolations — United States, 1983-1984 season*



*Reported to CDC by WHO Collaborating Laboratories (including military sources).

Addendum: Vol. 33, No. 11

p. 145. In the article, "Winter Plague—Colorado, Washington, Texas," the following names should be added to the credits on page 146: RG Atwood, MD, Yakima County, DW Shearer, MD, Topenish, HH Handsfield, MD, University of Washington, Seattle.

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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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